

CLAIMS

1. A high-power resistor, **characterized** in that it comprises a plurality of resistor elements (1), made of sheets of an electrically conductive resistance material, with a first (13) and a second (14) terminal, the resistor elements being mutually separated by disc-shaped insulating first shims (2), said first and second terminals being connected to adjacent resistor elements so that the respective first terminals are connected to a first terminal and that the respective second terminals are connected to a second terminal so that two adjacent resistor elements form a current path, whereby, viewed in a direction perpendicular to the plane of the sheets, said first and second terminals, respectively, are positioned in such a way relative to each other that, for an applied current, the current path in one resistor element substantially overlaps the current path in an adjacent resistor element and then carries the current in mutually opposite directions in the two adjacent resistor elements.

2. A high-power resistor according to claim 1, **characterized** in that each of the resistor elements is formed substantially as a circular ring with an outer and an inner element diameter, split by a continuous radial slit (12), and that said first and second terminals are arranged adjacent to the slit on both sides thereof.

3. A high-power resistor according to claim 2, **characterized** in that each of said first shims substantially has the shape of a circular ring.

4. A high-power resistor according to claim 3, **characterized** in that said first shims comprise a plurality of radially extending channels (22, 23) so that radially extending flow paths for a cooling medium is formed which, in the plane of

the sheets, are limited by two adjacent resistor elements and which, via gaps (O1, O2, O3, O4), communicate with a cylinder-shaped space (SP1), limited in a radial direction by the inner edges of the resistor elements and said first
5 shims, respectively, and with a space (SP2), located in a radial direction outside the outer edges of the resistor elements and the first shims, respectively.

5. A high-power resistor according to claim 4, **characterized**
10 in that each of said first shims substantially has the shape of a circular ring with an inner diameter that is smaller than the inner element diameter and an outer diameter that is larger than the outer element diameter, and said channels consist of slits (22) extending radially from an outer dia-
15 meter that is larger than the outer element diameter but smaller than the outer diameter of the shim, and an inner diameter that is smaller than the inner element diameter but larger than the inner diameter of the shim.

20 6. A high-power resistor according to claim 4, **characterized** in that each of said first shims substantially has the shape of a circular ring with a number of radially directed tongues (24), the ring having an inner diameter that is smaller than the inner element diameter and the tongues
25 extending in a radial direction outside the outer element diameter, and that said channels consist of openings (25) that are limited by said tongues in a tangential direction.

7. A high-power resistor according to any of claims 4-6,
30 **characterized** in that it is located in a substantially cylindrical container so that flow paths for the cooling medium are formed in a direction substantially perpendicular to the plane of the sheets both in a cylinder-shaped space (SP1), limited in a radial direction by the inner edges of
35 the resistor elements and said first shims, respectively, and in a space (SP2), limited in a radial direction by the inner wall (CW) of the container and by the outer edges of the resistor elements and said first shims, respectively.

8. A high-power resistor according to claim 7, **characterized** in that it comprises a first blocking means (5, 6) for blocking that flow path for the cooling medium which is constituted by the space (SP2), limited in a radial direction by the inner wall of the container and the outer edges of the resistor elements and said first shims, respectively.

9. A high-power resistor according to claim 8, **characterized** in that said first blocking means comprises a disc-shaped insulating second shim (5, 6) arranged between two adjacent resistor elements and substantially having the shape of a circular ring with an outer diameter that is essentially equal to the diameter of the inner wall (CW) of the container, said ring, in a direction perpendicular to the plane of the sheets, exhibiting a first part (6) with the circular ring split up in the tangential direction and with an inner diameter that is essentially equal to the outer element diameter, and a second part (5) with an inner diameter that is smaller than the inner element diameter, and with a plurality of radial slits (52) extending from an outer diameter that is larger than the outer element diameter and an inner diameter that is smaller than the inner element diameter.

10. A high-power resistor according to any of claims 8-9, **characterized** in that it comprises a second blocking means (3, 4) to block that flow path for the cooling medium which is constituted by the cylinder-shaped space (SP2), which in a radial direction is limited by the inner edges of the resistor elements and said first shims, respectively.

11. A high-power resistor according to claim 10, **characterized** in that said second blocking means comprises a disc-shaped insulating third shim (3, 4), arranged between two adjacent resistor elements, substantially having the shape of a circular disc, which in a direction perpendicular to the plane of the sheets exhibits a first part (4) with a diameter that is essentially equal to the inner element diameter, and a second part (3) with an outer diameter that is

smaller than the diameter of the inner wall of the container but larger than the outer element diameter, and with a plurality of radial slits (32) extending from an outer diameter that is larger than the outer element diameter but smaller
5 than the outer diameter of said shim, and an inner diameter that is smaller than the inner element diameter.